

WHAT IS CLAIMED IS:

1. A picture system for ophthalmic operation comprising:
a near-infrared microscope for irradiating near-infrared ray emitted from a light source
5 to an affected part through an objective lens, and transmitting near-infrared images
formed by the objective lens to a first and a second ocular lenses;
an image acquisition apparatus for converting near-infrared images transmitted to the
first and the second ocular lenses into a first and a second electrical image signals for
output; and
10 a display apparatus for receiving the first and the second image signals, and outputting
them in three-dimensions.
2. The picture system for ophthalmic operation according to claim 1, wherein the near-
infrared microscope further comprises an image transmission unit for transmitting
15 near-infrared images that are reflected by the affected part to the first and the second
ocular lenses respectively through optical paths different from each other.
3. The picture system for ophthalmic operation according to claim 2, wherein the near-
infrared microscope further comprises a near-infrared filter for passing only signals
20 having wavelength in near-infrared region among the rays emitted from the light
source.
4. The picture system for ophthalmic operation according to claim 3, wherein a visible
light reflection filter for reflecting visible light is jointed at the front surface of the near-
25 infrared filter.
5. The picture system for ophthalmic operation according to claim 3, wherein the near-
infrared filter is provided in a filter selecting unit, and a plurality of transmission filters
for each wavelength, including the near-infrared filter and the visible light filter, are
30 provided in the filter selecting unit.

6. The picture system for ophthalmic operation according to claim 2, wherein the near-infrared microscope further comprises an optical cable for transmitting near-infrared ray output from the light source, and a guide reflecting mirror for guiding the near-infrared ray transmitted by the optical cable to the objective lens.

7. The picture system for ophthalmic operation according to claim 1, wherein the light source comprises a near-infrared LED, and the affected part is irradiated by near-infrared ray output from the near-infrared LED.

8. The picture system for ophthalmic operation according to claim 1, wherein the image acquisition apparatus comprises:

a body formed with a first and a second inserting grooves in which the first and the second ocular lenses are inserted and fixed;

sensors for sensing near-infrared images output from the first and the second ocular lenses and converting them into the first and the second image signals; and relay lenses for transmitting near-infrared images output from the first and the second ocular lenses to the sensors.

9. The picture system for ophthalmic operation according to claim 8, wherein the sensors are charge-coupled devices (CCD).

10. The picture system for ophthalmic operation according to claim 1, wherein the display apparatus includes a plurality of display units, and further includes an image distributor for distributing and transmitting a first and a second image signals output from the image acquisition apparatus to a plurality of the display units.

11. The picture system for ophthalmic operation according to claim 10, wherein the display apparatus is a HMD (Head Mounted Display) or a three-dimensional monitor.

12. The picture system for ophthalmic operation according to claim 1, further including a control/storage apparatus for setting and controlling display environments of the display apparatus, and storing images displayed by the display apparatus.

5 13. The picture system for ophthalmic operation according to claim 12, wherein the control/storage apparatus creates database for retrieval and reproduction of the stored images.

10 14. The picture system for ophthalmic operation according to claim 1, wherein the image acquisition apparatus is detachably combined with the first and the second ocular lenses.

15 15. An image acquisition/output apparatus including a main body and a supporting member for supporting the main body, the main body comprising:
an objective lens arranged opposite to an affected part;
a beam irradiation unit for irradiating beam having a predetermined wavelength bandwidth to the affected part; and
an image acquisition unit for converting the images formed by the objective lens into electrical image signals and outputting them,
20 wherein the beam irradiation unit includes at least two filters having different light sources and transmission bandwidths.

25 16. The image acquisition/output apparatus according to claim 15, wherein the main body further includes an image transmission unit for transmitting the images formed by the objective lens to the image acquisition unit, and a relay lens for connecting the image transmission unit to the image acquisition unit.

30 17. The image acquisition/output apparatus according to claim 15, wherein the beam irradiation unit includes a near-infrared filter for transmitting the wavelengths corresponding to near-infrared region only.

18. The image acquisition apparatus according to claim 17, wherein a visible light reflection filter for reflecting visible light is jointed at the front surface of the near-infrared filter.

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19. A picture system for ophthalmic operation comprising:
an image acquisition/output apparatus according to claim 15; and
a display apparatus for outputting three-dimensional images using the image signals outputted from the image acquisition/output apparatus.

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20. The picture system for ophthalmic operation according to claim 19, wherein the display apparatus includes a plurality of display units, and further includes an image distributor for distributing and transmitting the image signals to a plurality of the display units.

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21. A picture system for ophthalmic operation comprising:
a near-infrared microscope for irradiating near-infrared ray to an affected part by guiding it to an objective lens, and transmitting near-infrared images formed by the objective lens to a left and a right ocular lenses;

20 a beam splitter arranged between the objective lens and the left and the right ocular lenses for dividing the left and the right near-infrared images respectively to transmit them to one side and the other side;

a first adaptor connected to one end of the beam splitter for receiving and outputting the left side near-infrared images;

25 a second adaptor connected to the other end of the beam splitter for receiving and outputting the right side near-infrared images;

a first image acquisition apparatus for outputting the left side near-infrared images output from the first adaptor as electrical left side image signals;

30 a second image acquisition apparatus for outputting the right side near-infrared images output from the second adaptor as electrical right side image signals; and

a plurality of display apparatuses for receiving the left and the right image signals and outputting them in three-dimensional images respectively.

22. The picture system for ophthalmic operation according to claim 21, further
5 comprising an image distributor for distributing and transmitting the left side image data and the right side image data output from the first and the second image acquisition apparatuses to a plurality of the display units, and
a control/storage apparatus for setting and controlling display environments of the display apparatuses respectively, and storing images being displayed by the display
10 apparatus.